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Development Of Basic Science Concept Modules From The Perspective Of The Qur'an At Uin Ar-Raniry

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Abstract

To improve the effectiveness of the learning process, innovative learning strategies can be implemented, such as changing the routine in using learning resources. The innovation in this research is the development of a learning module on basic science concepts based on the Quran, with the hope that students in Aceh, where Islamic law is practiced, will be more motivated in the learning process and thus improve their learning outcomes. The purpose of this study is to determine the feasibility of the basic science concept learning module developed from the perspective of the Qur'an, the responses of students and teaching staff in the field of study to the basic science concept learning module from the perspective of the Qur'an, and the influence of the basic science concept learning module from the perspective of the Qur'an on student learning outcomes. This study applies a research and development design, which is a research design applied to produce and develop a product and to test the effectiveness of the resulting product. The results of this study indicate that mlongThe learning of basic science concepts from the perspective of the Qur'an that was developed is suitable for use in the process of teaching basic science concepts, the response of students and teaching staff at UIN Ar-Raniry is positive.waybasic concepts of science from the perspective of the Qur'an, as well as mlongThe learning developed was declared effective in improving the learning outcomes of UIN Ar-Raniry students in learning basic science concepts.

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1. INTRODUCTION

The rapid development of knowledge today and the implications of current changes require adjustments and improvements in the field of education, for example adjustments to strategies, learning media and the development of teaching materials, because these developments will give rise to problems regarding shaping learning to suit developments and needs in the world of work. (Aquino, 2012). The reality of needs in the world of work should be adapted to innovative learning methods in educational institutions.

The success of a learning process, as an effort to achieve national education goals, is influenced by several factors, both internal and external to the students. Therefore, not only teachers and students play a role in the success of the learning process, but it must also be supported by other aspects, namely the quality of students, the availability of teaching materials, facilities and infrastructure, learning resources, and other supporting factors. According to constructivist theory, teachers do not merely provide knowledge to students, but students must also reconstruct their own knowledge. Teachers only facilitate by allowing students to discover

and apply their own ideas (Trianto, 2020). To help students construct their understanding, appropriate teaching materials are needed to support the success of this learning.

To improve the effectiveness of the learning process, innovative approaches can be employed, such as changing the routine use of learning resources. The innovation in this research is the development of a learning module on basic scientific concepts based on the Quran, with the hope that students in Aceh, where Islamic law is practiced, will be more motivated in their learning process and thus improve their learning outcomes.

Development, in its broadest sense, refers to the activity of producing a new product or method. During this process, the product or method is continuously evaluated and refined. If, after refinement and improvement, the product or method is deemed effective for continued use, the development process ends.

According to Nasution (2013), a module can be defined as a complete, stand-alone unit consisting of a series of learning activities designed to help students achieve several clearly and specifically defined objectives. Institutions use books in module form for the following reasons:

a. The discussion presented is complete for one main topic in one module that is arranged.
b. Learning based on the principle of learning how *to do*, it would be appropriate to study the material in the form of teaching modules.

Thus, learning using modules can provide students with the opportunity to learn at their own pace and can also help them measure their learning progress. By understanding their individual abilities, students will be more motivated to learn and address any deficiencies. Learning using modules requires students to be more actively involved in their own learning.

A learning module is a structured and detailed guide to learning materials in the learning process. Properly written modules aim to motivate students to learn enthusiastically by delivering material tailored to their abilities and interests. The primary goal of designing modules is to allow students greater freedom to learn, even when they are not on campus or accompanied by a teacher.

The use of modules in learning is also expected to change students' habits and help students understand theories in depth through learning experiences, and provide opportunities for students to recognize their strengths and weaknesses, so that students can improve their weaknesses through remedial modules or variations in learning to achieve learning outcomes that are in accordance with the expected goals.

2. RESEARCH METHODS

Sampling techniques and designs

The population in this study was 402 students, and 240 students (59.7%) were selected as the research sample. A random sampling was conducted to obtain six class units from two faculties and six study programs at UIN Ar-Raniry for the research, namely the Faculty of Science and Technology and the Faculty of Tarbiyah and Teacher Training of UIN Ar-Raniry.

This study used a research and development design. According to Sugiyono (2015), this design is a research design applied to produce and develop specific results and test the effectiveness of a product.

The steps for implementing the research and development methods used in this research are to produce a product in the form of a basic science concept module as presented in the following image (Sugiyono, 2015).

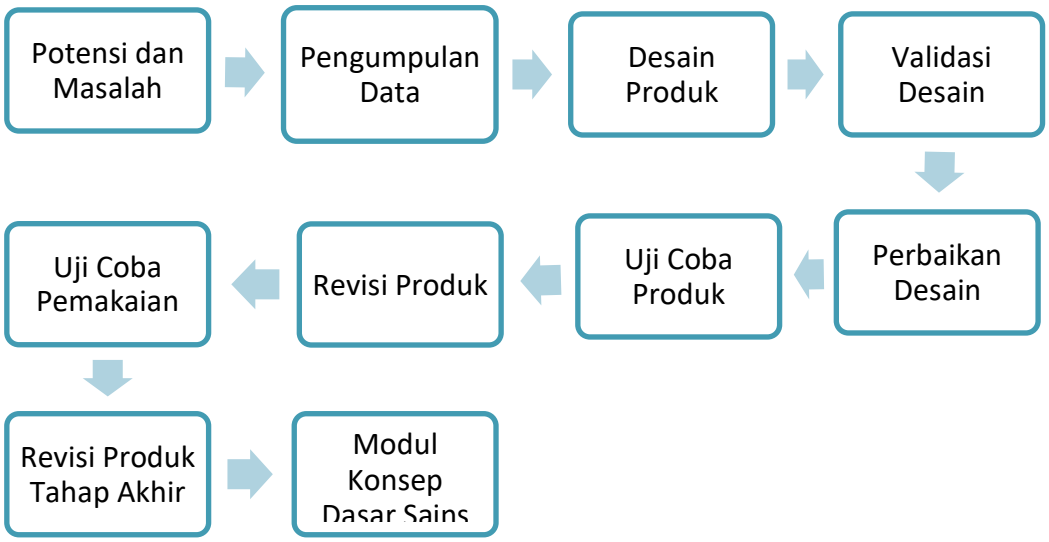

Figure 1. Research and development design

Instrument

A research instrument is a tool used to measure data in a study. To reach a research conclusion, precise, valid, and accurate data are required. In this study, the instruments used were expert validation sheets, observation sheets, questionnaires, and basic science concept tests.

1. Validation Sheet
   The validation sheet is a research instrument that contains written statements/questions addressed to the validator team to correct deficiencies in the basic science concept module that will be used.
2. Questionnaire Sheet
   A questionnaire is a method of collecting data by providing a set of written questions/statements to respondents to answer (Mahmud, 2011). The questionnaire instrument in this research and development was used to obtain student response data regarding the basic science concept module used.
3. Test Questions
   A test is a series of questions or other tools used to measure the skills, knowledge, intelligence, abilities, and interests of an individual or group (Mahmud, 2011). This basic science concept test is used to determine student learning outcomes after implementing basic science concept learning.

Data Collection Techniques

Data collection techniques are a key step in

Because the goal of the research is to obtain data, the researcher must determine the instruments to be used during the research. The explanation of the data collection procedures in this research is as follows:

1. Validation
   The expert validation sheet contains statements and criticisms from the validator, which are used to identify deficiencies in the basic science concept learning module that has been designed.
2. Questionnaire
   A questionnaire is a systematically designed list of questions/statements, with the expectation that respondents will provide direct, honest, and accountable answers. The questionnaire in this study will provide data on students' responses to the basic science concepts module used.
3. Hand

The test is used to assess students' ability to understand the material or concepts being studied. This test will consist of 20 multiple-choice questions covering basic science concepts.

4. Documentation

Documentation is a data collection method conducted through archival data (Mahmud, 2011). Documentation techniques include data in the form of transcripts, notes, diaries, agendas, and other materials. Documentation techniques are used to strengthen data obtained in research and provide concrete information regarding student participation during the basic science learning process.

Data analysis

1. Validation sheet

Validation assessment data is used as evaluation material for the developed basic science concept module. The validation sheet is used to obtain qualitative product data reviewed from several components, including module feasibility, presentation components, design used, and suitability to the compiled material, using a checklist scale.

The validation sheets provided to the module expert team were used in four categories, as shown in Table 3.1 below.

Table 1. Validation Indicator Categories

Validation Category	**A**	**B**	**C**	**D**
Question	4	3	2	1

Note: A= Very Good, B= Good, C= Sufficient, D= Poor.

The results of the expert (validator) validation of the assessed aspects are then presented in a table. This allows us to find the average score using the following formula:

$$P = \frac{f}{N} \times 100\%$$

Note: P= Percentage,*f*= score obtained, N= total score.

For the next stage, namely translating the percentage value (%) with the expert validation distribution table, the categories are determined as follows.

Table 2. Distribution of validation results

Percentage (%)	**Category**
76-100	Very well
56-75	Good
40-55	Enough
0-39	Not enough

The results of the research on this criterion mean that the basic science concept learning module is categorized as good, because it obtained an average percentage result above 56%.

2. Questionnaire

The questionnaire data in the form of student and teaching staff responses regarding the use of the developed Al-Quran-based basic science concept module was

obtained from the questionnaire. The assessment scores were as follows: (1) strongly disagree, (2) disagree, (3) agree, (5) strongly agree (Mardapi, 2018). To obtain the percentage of student responses, it can be calculated using the following formula:

$$P = \frac{f}{N} \times 100\%$$

Notes:
P = Percentage
f = Frequency of students who answered
N = total number of students

The criteria for calculating respondents' responses are presented in the following table (Riduwan, 2013).

Table 3 Response criteria

Score (%)	Criteria
0 -25	Strongly disagree
26-50	Don't agree
51-75	Agree
76-100	Strongly agree

3. Hand

The overall scoring of student learning outcomes can be calculated using the formula (Sudijono, 2015):

$$P = \frac{f}{N} \times 100\%$$

Notes:
P = percentage
f = frequency whose percentage is sought.
N = number of student frequencies

The description of scores for student learning outcomes is included in the following table (Schunk, 2012):

Table 4 Student Learning Outcome Scores

Level of mastery	Letter value	Qualifications
90-100%	A	Very good
80-89%	B	Good
70-79%	C	Enough
61-69%	D	Not enough
$< 60\%$	AND	Failed

3. RESULTS AND DISCUSSION

The R and D research plan has gone through stages in producing a learning module on basic science concepts from the perspective of the Qur'an, with the following stages:

1. Potential and problems in learning basic concepts of science

In the initial step, researchers collect information from related parties, and based on this initial observation, it is known that there is no special module on science concepts from the perspective of the Qur'an that is used in the lecture process. Through this initial observation, information was also obtained that there are still limited learning modules. Basic concepts of sciencewhich can facilitate students' learning activities that focus on students, namely teaching

staff as facilitators. Considering the importance of this module to support the basic science concepts course, it is necessary to design a learning module for basic science concepts from the perspective of the Qur'an.

2. Data collection on the process of learning basic concepts of science

The next stage carried out in this research is to obtain information from literature studies on the concept of science from the perspective of the Qur'an, and analysis of basic competencies in the material on basic science concepts at the Teacher Training Institute .Based on the information results, the researcher tried to design a module. The concept of science from the perspective of the Qur'anwhich is easy to understand and is arranged systematically with an attractive design, and with tools and materials obtained in everyday life, as an effort to make students more motivated in learning.

3. Module product designbasic concepts of science from the perspective of the Qur'an

The design stage is designing the product concept. This stage begins with the creation of a research instrument grid that is in accordance with the indicators for measuring product validity way, basic concepts of science in the Qur'an, which were then developed into research instruments.

4. Design validation: way basic concepts of science from the perspective of the Qur'an

At this stage, the design results evaluation process is carried out way basic concepts of science from the perspective of the Qur'an, whether the product developed iswayThe basic concepts of science from a Qur'anic perspective are suitable for use. Validation of this module was conducted through assessments by four expert lecturers: experts in appearance, materials, language, and evaluation. These experts are lecturers in the Postgraduate Program at UIN Ar-Raniry and the Postgraduate Program at Syiah Kuala University. Each expert the basic concepts of science from the perspective of the Qur'an, with the results that have been corrected by experts, are summarized as follows:

a. The display expert concluded that it was usable with revisions.
b. Linguists summarize that it has been used.
c. The material expert concluded that it could be used with revisions.

Based on the results of input and assessment by the validator team regarding the basic concepts of science from the perspective of the Qur'an, that were developedan average value of 87% was obtained. If the assessment results on quantitative data are consulted with the assessment scale contained in qualitative data, the results show that the assessment of the module concept of science from the perspective of the Qur'an is included in the very good category.

5. Revision: Basic concepts of science from the perspective of the Qur'an

The validated scientific concepts in the Qur'an were then revised according to the expert team's suggestions. After the design was validated, it turned out that not all aspects were valid and could be used for what was developed. Next, the researcher revised a method that was developed to produce more products for use in the process of teaching basic science concepts.

6. Trialwaybasic concepts of science from the perspective of the Qur'an

Module revised concept of science from the perspective of the Qur'an was then tested by distributing questionnaires to students to find out students' responses to it. The basic concepts of science from the perspective of the Qur'an have been developed. In the product trial phase of this module, researchers tested it in small and large groups. In the small group, 10 students served as a sample to assess the results.The concept of science from the perspective of the Qur'an has been developed, with the sample selection being carried out randomly.

After the product trial, the concept of science from a Qur'anic perspective was revised. The results were then tested on a larger group of students. This trial phase involved 20 students to determine the level of feasibility. The concept of science from the perspective of the Qur'an, then a questionnaire was distributed to students.

Student response was positive toward the way basic concepts of science from the perspective of the Qur'an were developed, from the data shown in the answers on the questionnaire sheet by students. Scores against the concept of science from the perspective of the Qur'an, namely 68.5% of students answered very well, and 31.5% students responded well to learning using basic concepts of science in the Qur'an.

7. Productsway basic concepts of science from the perspective of the Qur'an

The results of the product usage trial revision The basic concepts of science in the Qur'an have been declared effective for use in the learning process. However, researchers have only produced a limited number of copies for research purposes.

Discussion

The results of this study are in line with the results of research conducted by Diana Septika et al. (2024), that there is an influence of module development on learning outcomes, and research by Manihar et al. (2014), to develop a learning module package through innovation and integration of character education in high school chemistry learning materials. The developed learning modules are known to be able to help students learn effectively in achieving competency standards as desired in the national curriculum. The results of the study showed that the learning outcomes of students in the experimental group (84.44,±8.33) were higher than the control group (75.28,±11.62), and both are significantly different (t-test 7,964 > t-table 1.662). So a positive correlation was found between learning outcomes and learning motivation, and student character (r2=0.871) in chemistry learning.

Furthermore, research conducted by Ratna Almira Sari et al. (2014) showed that the results of small-group trials for blog-based learning modules were 51%, which is considered sufficient. Meanwhile, the results of medium-scale trials were 64%, which is considered good. The results of large-group trials were 66%, which is considered good.

Furthermore, according to Daryanto (2013), to produce a module that can increase students' interest in learning, the following characteristics should be considered:

a. *Self instruction*

This characteristic allows a person to learn individually and independently. To fulfill this characteristic So the module must contain the objectives to be achieved, material arranged in specific sub-subjects, relevant examples, questions for practice that can measure mastery of the material, information about references, and appropriate assessment instruments.

b. *Self contained*

This characteristic is met if all required material is included in the developed module. The goal is to provide students with the opportunity to thoroughly study a subject. If learning material must be separated from a single competency standard, this should be done by considering the breadth of the indicators assigned to the learners.

c. *Stand*-alone

This characteristic is a characteristic of a module that is independent of other learning materials or media, so it doesn't have to be used in conjunction with other materials. Students don't need to use other media to learn the module's content. If students still rely on other media besides the module being used, then this media is not classified as a stand-alone module.

d. *Adaptive*

A developed module is categorized as adaptive if the module is flexible and can adapt to developments in science and technology.

e. *Unfortunate*

The module is structured using active sentences so that each presentation of information and instructions is helpful and easy to understand for the reader, including being easy to use and access according to your wishes and easy to understand, and using commonly used terms.

The use of modules in the learning process certainly has advantages, as stated by Suryobroto (2013), that the advantages of learning using modules are as follows:

a. Focusing on students' personal abilities, because learners can learn independently and are more responsible for their learning outcomes.
b. There is control over student learning outcomes through the formulation of competency standards in the module that must be achieved by students.
c. Relevant to the curriculum as indicated by the objectives and methods of achievement, so that learners can understand the relationship between learning and the learning outcomes to be obtained.

4. CONCLUSION

1. The learning of basic science concepts from the perspective of the Qur'an that was developed is suitable for use in lectures on basic science concepts.
2. The response from students and teaching staff was positive toward the way basic concepts of science from the perspective of the Qur'an are developed.
3. The lecture on basic science concepts from the perspective of the Qur'an that was developed was declared effective in improving student learning outcomes in learning basic science concepts.

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